CE

LVD TEST REPORT

Report No.:	WST13080142-1SR
Product:	Power adapter
Trade mark:	energenie
Model No.:	EG-UC-AC1,EG-UC-AC1-B,EG-UC-AC2,EG-UC-AC2-B, EG-UC-AC3,EG-UC-AC4
Applicant:	Shenzhen Gembird Electronics Ltd.
Address:	5th floor, Building B, Shifeng Industry Park, Huaning Road, Dalang Street, Longhua District, Shenzhen
Issued by:	WST Certification & Testing (HK) Limited
Lab Location:	12/F., San Toi Building, 137-139 Connaught Road Central, Hong Kong HongKong Tel: (00852) -21393077 Fax: (00852) -21393217
Tel:	Shenzhen office: Tel:0755-27822785 Fax:0755-27822175 E-mail:Michael@wstlab.com Http:// www.wstlab.com

TEST REPORT

EN 60950-1
Information technology equipment – Safety – Part 1: General requirements

Report Number.....:	WST13080142-1SR
Tested by (+ signature) .....:	Alan Zhou
Approved by (+ signature) .....:	Michael Ling
Date of issue.....:	Aug. 30, 2013
Total number of pages.....:	59 Pages
Testing laboratory .....:	WST Certification & Testing (HK) Limited
Address .....:	12/F., San Toi Building, 137-139 Connaught Road Central, Hong Kong
Testing location .....:	As above
Applicant's name.....:	Shenzhen Gembird Electronics Ltd.
Address.....:	5th floor, Building B, Shifeng Industry Park, Huaning Road, Dalang Street, Longhua District, Shenzhen
Test specification:	
Standard .....:	EN 60950-1:2006+A11:2009+A1:2010+A12:2011
Test procedure.....:	CE Attestation
Non-standard test method.....:	N/A
Test Report Form No......:	**IEC60950_1B**
Test Report Form(s) Originator .....:	SGS Fimko Ltd
Master TRF.....:	Dated 2010-04

This test report is specially limited to the above client company and product model only. It may not be duplicated without prior written consent of WST Test.

Test item description.....:	Power adapter
Trade Mark .....:	energenie
Manufacturer.....:	Shenzhen Gembird Electronics Ltd.. 5th floor, Building B, Shifeng Industry Park, Huaning Road, Dalang Street, Longhua District, Shenzhen
Model/Type reference.....:	EG-UC-AC1,EG-UC-AC1-B,EG-UC-AC2,EG-UC-AC2-B, EG-UC-AC3,EG-UC-AC4
Ratings.....:	Input: 110-240VAC, 50/60Hz, 0.3A Output: 5V⎓, 1A×2

Summary of testing:	
Tests performed (name of test and test clause): **EN 60950-1: 2006+A11:2009+A1:2010+A12:2011.** The submitted samples were found to comply with the requirements of above specification.	**Testing location:** 12/F., San Toi Building, 137-139 Connaught Road Central, Hong Kong

Copy of marking plate

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

(Additional requirements for markings. See 1.7 NOTE)

Power adapter
Model: EG-UC-AC1
Input: 110-240V~, 50/60Hz, 0.3A
Output: 5V⎓1A×2

Shenzhen Gembird Electronics Ltd.

Made in china

Remark on above marking:
1, The height of CE symbols is more than 5 mm;
2, The height of WEEE symbols is more than 7 mm;

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

Test item particulars .....:	
Equipment mobility .....:	[] movable [] hand-held [] transportable [] stationary [] for building-in [x] direct plug-in
Connection to the mains.....:	[x] pluggable equipment [x] type A [] type B [] permanent connection [] detachable power supply cord [] non-detachable power supply cord [] not directly connected to the mains
Operating condition .....:	[x] continuous [] rated operating / resting time:
Access location .....:	[x] operator accessible [] restricted access location
Over voltage category (OVC) .....:	[] OVC I [x] OVC II [] OVC III [] OVC IV [] other:
Mains supply tolerance (%) or absolute mains supply values .....:	±10%
Tested for IT power systems .....:	[] Yes [x] No
IT testing, phase-phase voltage (V) .....:	
Class of equipment .....:	[ ] Class I [x] Class II [] Class III [ ] Not classified
Considered current rating of protective device as part of the building installation (A) .....:	16A
Pollution degree (PD) .....:	[] PD 1 [x] PD 2 [] PD 3
IP protection class .....:	IP20
Altitude during operation (m) .....:	<2000m
Altitude of test laboratory (m) .....:	<2000m
Mass of equipment (kg) .....:	0.0736Kg
Possible test case verdicts:	
- test case does not apply to the test object .....:	N/A (or N)
- test object does meet the requirement .....:	P (Pass)
- test object does not meet the requirement .....:	F (Fail)
Testing .....:	
Date of receipt of test item .....:	Aug. 22, 2013
Date(s) of performance of tests .....:	Aug. 22, 2013 –Aug. 30, 2013
General remarks: All the models are identical except output voltages and output currents.	

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
"(see Enclosure #)" refers to additional information appended to the report.
"(see appended table)" refers to a table appended to the report.

Throughout this report a ☒ comma / ☐ point is used as the decimal separator.

General product information:

- The adapter model is EG-UC-AC1 manufacturer by Shenzhen Gembird Electronics Ltd.
- Top and bottom enclosure are melt together by ultrasonic welding.
- Max. ambient temperature 55℃.

Abbreviations used in the report:

- normal conditions	N.C.	- single fault conditions	S.F.C
- functional insulation	OP	- basic insulation	BI
- double insulation	DI	- supplementary insulation	SI
- between parts of opposite polarity	BOP	- reinforced insulation	RI

Indicate used abbreviations (if any)

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1	**GENERAL**		P
1.5	**Components**		P
1.5.1	General		P
	Comply with IEC 60950-1 or relevant component standard	(see appended tables 1.5.1)	P
1.5.2	Evaluation and testing of components		P
1.5.3	Thermal controls		N
1.5.4	Transformers	Transformer used is suitable for their intended applications and comply with relevant parts of this standard and particularly Annex C, see Annex C – Transformers.	P
1.5.5	Interconnecting cables	The interconnecting cables contain only SELV.	P
1.5.6	Capacitors bridging insulation	No such capacitor	N
1.5.7	Resistors bridging insulation	No such resistors	N
1.5.7.1	Resistors bridging functional, basic or supplementary insulation		N
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits	No such resistors	N
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable	No such resistors	N
1.5.8	Components in equipment for IT power systems		N
1.5.9	Surge suppressors	No surge suppressors	N
1.5.9.1	General		N
1.5.9.2	Protection of VDRs		N
1.5.9.3	Bridging of functional insulation by a VDR		N
1.5.9.4	Bridging of basic insulation by a VDR		N
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N
1.6	**Power interface**		P
1.6.1	AC power distribution systems	TN distribution systems.	P
1.6.2	Input current	(see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment		N
1.6.4	Neutral conductor		P
1.7	**Marking and instructions**		P

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.1	Power rating and identification markings	Input: 110-240VAC, 50/60Hz, 0.3A Output: 5V⎓,1A×2	P
1.7.1.1	Power rating marking		P
	Multiple mains supply connections.....:		N
	Rated voltage(s) or voltage range(s) (V) .....:	110-240V~	P
	Symbol for nature of supply, for d.c. only.....:	⎓	P
	Rated frequency or rated frequency range (Hz) ...:	50/60Hz	P
	Rated current (mA or A) .....:	0.3A	P
1.7.1.2	Identification markings		P
	Manufacturer's name or trade-mark or identification mark .....:	Shenzhen Gembird Electronics Ltd.	P
	Model identification or type reference .....:	EG-UC-AC1	P
	Symbol for Class II equipment only .....:		P
	Other markings and symbols .....:	CE Mark	P
1.7.2	Safety instructions and marking	Operating/safety instructions made available to the user.	P
1.7.2.1	General		P
1.7.2.2	Disconnect devices	plug	P
1.7.2.3	Overcurrent protective device	No overcurrent protective device	N
1.7.2.4	IT power distribution systems		N
1.7.2.5	Operator access with a tool		N
1.2.7.6	Ozone	No ozone	N
1.7.3	Short duty cycles	Continuous operation	N
1.7.4	Supply voltage adjustment .....:		N
	Methods and means of adjustment; reference to installation instructions .....:		N
1.7.5	Power outlets on the equipment .....:	No standard power outlets	N
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference) .....:	Fuse resistance used	N
1.7.7	Wiring terminals	No such terminals	N
1.7.7.1	Protective earthing and bonding terminals .....:		N
1.7.7.2	Terminals for a.c. mains supply conductors		N
1.7.7.3	Terminals for d.c. mains supply conductors		N
1.7.8	Controls and indicators		N
1.7.8.1	Identification, location and marking .....:		P
1.7.8.2	Colours .....:		P

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.8.3	Symbols according to IEC 60417.....:	No used symbols	N
1.7.8.4	Markings using figures .....:		N
1.7.9	Isolation of multiple power sources .....:	No multiple power sources	N
1.7.10	Thermostats and other regulating devices .....:	No such regulating device.	N
1.7.11	Durability	The marking withstand the required test.	P
1.7.12	Removable parts		N
1.7.13	Replaceable batteries .....:		N
	Language(s) .....:	English	—
1.7.14	Equipment for restricted access locations.....:		N
2	**PROTECTION FROM HAZARDS**		P
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in operator access areas	Supplied from SELV only.	P
2.1.1.1	Access to energized parts	Energized parts are not accessible.	P
	Test by inspection .....:	Complies.	P
	Test with test finger (Figure 2A) .....:	Complies.	P
	Test with test pin (Figure 2B) .....:	Complies.	P
	Test with test probe (Figure 2C) .....:	No TNV circuit.	N
2.1.1.2	Battery compartments	No battery in the equipment.	N
2.1.1.3	Access to ELV wiring	No internal wiring at ELV.	N
	Working voltage (Vpeak or Vrms); minimum distance through insulation (mm)	(see appended tables 2.10.2 and 2.10.5)	—
2.1.1.4	Access to hazardous voltage circuit wiring	No hazardous voltage circuit wiring.	N
2.1.1.5	Energy hazards .....:	(see appended tables 2.1.1.5)	P
2.1.1.6	Manual controls	No shafts of knobs etc.	N
2.1.1.7	Discharge of capacitors in equipment	No X-capacitor	N
	Measured voltage (V); time-constant (s).....:		—
2.1.1.8	Energy hazards – d.c. mains supply	AC mains supply.	N
	a) Capacitor connected to the d.c. mains supply ..:		N
	b) Internal battery connected to the d.c. mains supply .....:		N
2.1.1.9	Audio amplifiers .....:		N
2.1.2	Protection in service access areas		N
2.1.3	Protection in restricted access locations		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.2	**SELV circuits**		P
2.2.1	General requirements	(see appended table 2.2)	P
2.2.2	Voltages under normal conditions (V) .....:	< 60V d.c.	P
2.2.3	Voltages under fault conditions (V) .....:	< 60V d.c.	P
2.2.4	Connection of SELV circuits to other circuits .....:	SELV circuits are only connected to other SELV circuits.	N
2.3	**TNV circuits**		N
2.3.1	Limits	No TNV circuits	N
	Type of TNV circuits.....:		—
2.3.2	Separation from other circuits and from accessible parts		N
2.3.2.1	General requirements		N
2.3.2.2	Protection by basic insulation		N
2.3.2.3	Protection by earthing		N
2.3.2.4	Protection by other constructions .....:		N
2.3.3	Separation from hazardous voltages		N
	Insulation employed .....:		—
2.3.4	Connection of TNV circuits to other circuits		N
	Insulation employed .....:		—
2.3.5	Test for operating voltages generated externally		N
2.4	**Limited current circuits**		P
2.4.1	General requirements	See appended table 2.4.1	P
2.4.2	Limit values	See appended table 2.4.1	P
	Frequency (Hz).....:	See appended table 2.4.1	—
	Measured current (mA) .....:	See appended table 2.4.1	—
	Measured voltage (V).....:	See appended table 2.4.1	—
	Measured circuit capacitance (nF or µF) .....:		—
2.4.3	Connection of limited current circuits to other circuits	See 2.2.2 and 2.2.3. No direct connection between SELV and any primary circuits.	N
2.5	**Limited power sources**	(see appended table 2.5)	P
	a) Inherently limited output		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	b) Impedance limited output		N
	c) Regulating network limited output under normal operating and single fault condition		P
	d) Overcurrent protective device limited output		N
	Max. output voltage (V), max. output current (A), max. apparent power (VA) .....:		—
	Current rating of overcurrent protective device (A) .:		—
	Use of integrated circuit (IC) current limiters	(See Annex CC)	N
2.6	**Provisions for earthing and bonding**		N
2.6.1	Protective earthing	Class Ⅱ equipment	N
2.6.2	Functional earthing		N
2.6.3	Protective earthing and protective bonding conductors		N
2.6.3.1	General		N
2.6.3.2	Size of protective earthing conductors		N
	Rated current (A), cross-sectional area (mm^2), AWG.....:		—
2.6.3.3	Size of protective bonding conductors		N
	Rated current (A), cross-sectional area (mm^2), AWG.....:		—
	Protective current rating (A), cross-sectional area (mm^2), AWG.....:		
2.6.3.4	Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min).....:		N
2.6.3.5	Colour of insulation .....:		N
2.6.4	Terminals		N
2.6.4.1	General		N
2.6.4.2	Protective earthing and bonding terminals		N
	Rated current (A), type, nominal thread diameter (mm).....:		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N
2.6.5	Integrity of protective earthing		N
2.6.5.1	Interconnection of equipment		N
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N
2.6.5.3	Disconnection of protective earth		N
2.6.5.4	Parts that can be removed by an operator		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.6.5.5	Parts removed during servicing		N
2.6.5.6	Corrosion resistance		N
2.6.5.7	Screws for protective bonding		N
2.6.5.8	Reliance on telecommunication network or cable distribution system		N
2.7	**Overcurrent and earth fault protection in primary circuits**		P
2.7.1	Basic requirements	Protective device is integrated in the equipment, see also Sub-clause 5.3	P
	Instructions when protection relies on building installation		N
2.7.2	Faults not simulated in 5.3.7	Considered.	P
2.7.3	Short-circuit backup protection	Adequate protective device.	P
2.7.4	Number and location of protective devices .....:	Fuse resistance used	P
2.7.5	Protection by several devices	Only one protective device. See Sub-clause 2.7.4.	N
2.7.6	Warning to service personnel .....:		N
2.8	**Safety interlocks**		N
2.8.1	General principles	No safety interlocks used	N
2.8.2	Protection requirements		N
2.8.3	Inadvertent reactivation		N
2.8.4	Fail-safe operation		N
	Protection against extreme hazard		N
2.8.5	Moving parts		N
2.8.6	Overriding		N
2.8.7	Switches, relays and their related circuits		N
2.8.7.1	Separation distances for contact gaps and their related circuits (mm) .....:		N
2.8.7.2	Overload test		N
2.8.7.3	Endurance test		N
2.8.7.4	Electric strength test	(see appended table 5.2)	N
2.8.8	Mechanical actuators		N
2.9	**Electrical insulation**		P

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.9.1	Properties of insulating materials	Neither natural rubber, materials containing asbestos nor hygroscopic materials are used as insulation. No driving belts or couplings used.	P
2.9.2	Humidity conditioning	Humidity treatment performed at 48 hr.	P
	Relative humidity (%), temperature (°C) .....:	25℃, 93%	—
2.9.3	Grade of insulation	Insulation complies with sub-clauses 2.10,4.5.a and 5.2.	P
2.9.4	Separation from hazardous voltages	Insulation is considered to be functional, basic, double or reinforced insulation.	P
	Method(s) used .....:		—
2.10	**Clearances, creepage distances and distances through insulation**		P
2.10.1	General		P
2.10.1.1	Frequency .....:		P
2.10.1.2	Pollution degrees .....:	Pollution Degree 2	P
2.10.1.3	Reduced values for functional insulation	See 5.3.4	N
2.10.1.4	Intervening unconnected conductive parts		N
2.10.1.5	Insulation with varying dimensions		N
2.10.1.6	Special separation requirements	No TNV	N
2.10.1.7	Insulation in circuits generating starting pulses	No such circuit.	N
2.10.2	Determination of working voltage	See appended table 2.10.2	P
2.10.2.1	General	(See appended table)	P
2.10.2.2	RMS working voltage	Ditto.	P
2.10.2.3	Peak working voltage	Ditto.	P
2.10.3	Clearances	(See appended table)	P
2.10.3.1	General		P
2.10.3.2	Mains transient voltages	Overvoltage Category II is considered	P
	a) AC mains supply .....:	Normal transient voltage considered. 2500V	P
	b) Earthed d.c. mains supplies .....:	AC mains	N
	c) Unearthed d.c. mains supplies .....:		N
	d) Battery operation .....:		N
2.10.3.3	Clearances in primary circuits	(see appended table 2.10.3 and 2.10.4)	P

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.3.4	Clearances in secondary circuits	See 5.3.4	N
2.10.3.5	Clearances in circuits having starting pulses	(see appended table 2.10.3 and 2.10.4)	N
2.10.3.6	Transients from a.c. mains supply .....:	1500V	P
2.10.3.7	Transients from d.c. mains supply .....:		N
2.10.3.8	Transients from telecommunication networks and cable distribution systems .....:		N
2.10.3.9	Measurement of transient voltage levels		N
	a) Transients from a mains supply		N
	For an a.c. mains supply .....:		N
	For a d.c. mains supply .....:		N
	b) Transients from a telecommunication network :		N
2.10.4	Creepage distances	See below.	P
2.10.4.1	General	See appended table 2.10.3 and 2.10.4	P
2.10.4.2	Material group and comparative tracking index		P
	CTI tests .....:	Material group IIIb is assumed to be used	—
2.10.4.3	Minimum creepage distances	(see appended table 2.10.3 and 2.10.4)	P
2.10.5	Solid insulation	See below.	P
2.10.5.1	General		N
2.10.5.2	Distances through insulation	(see appended table 2.10.5)	N
2.10.5.3	Insulating compound as solid insulation		N
2.10.5.4	Semiconductor devices		P
2.10.5.5.	Cemented joints	(see appended table 2.10.3 and 2.10.4)	N
2.10.5.6	Thin sheet material – General	Thin sheet material complies strength test	P
2.10.5.7	Separable thin sheet material	See above.	P
	Number of layers (pcs).....:	2 layers	—
2.10.5.8	Non-separable thin sheet material		N
2.10.5.9	Thin sheet material – standard test procedure		N
	Electric strength test	(see appended table 2.10.5)	—
2.10.5.10	Thin sheet material – alternative test procedure		P
	Electric strength test	(see appended table 2.10.5)	—
2.10.5.11	Insulation in wound components		P
2.10.5.12	Wire in wound components		P
	Working voltage .....:	See appended table	--

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	a) Basic insulation not under stress .....:		N
	b) Basic, supplementary, reinforced insulation .....:		P
	c) Compliance with Annex U .....:		N
	Two wires in contact inside wound component; angle between 45° and 90° .....:		N
2.10.5.13	Wire with solvent-based enamel in wound components		N
	Electric strength test	(see appended table 2.10.5)	—
	Routine test		N
2.10.5.14	Additional insulation in wound components	No such construction.	N
	Working voltage .....:		N
	- Basic insulation not under stress .....:		N
	- Supplementary, reinforced insulation .....:		N
2.10.6	**Construction of printed boards**		P
2.10.6.1	Uncoated printed boards		N
2.10.6.2	Coated printed boards	(see appended table 2.10.3 and 2.10.4)	P
2.10.6.3	Insulation between conductors on the same inner surface of a printed board	(see appended table 2.10.3 and 2.10.4)	N
2.10.6.4	Insulation between conductors on different layers of a printed board		N
	Distance through insulation	(see appended table 2.10.5)	N
	Number of insulation layers (pcs).....:		N
2.10.7	**Component external terminations**	(see appended table 2.10.3 and 2.10.4)	N
2.10.8	Tests on coated printed boards and coated components		N
2.10.8.1	Sample preparation and preliminary inspection		N
2.10.8.2	Thermal conditioning		N
2.10.8.3	Electric strength test	(see appended table 5.2)	N
2.10.8.4	Abrasion resistance test		N
2.10.9	Thermal cycling		N
2.10.10	Test for Pollution Degree 1 environment and insulating compound		N
2.10.11	Tests for semiconductor devices and cemented joints		N
2.10.12	Enclosed and sealed parts		N

3	**WIRING, CONNECTIONS AND SUPPLY**	P
3.1	General	P

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.1.1	Current rating and overcurrent protection		P
3.1.2	Protection against mechanical damage	Adequate cross sectional areas on internal wiring and interconnecting cables.	P
3.1.3	Securing of internal wiring		P
3.1.4	Insulation of conductors	Insulation on internal conductors is considered to be of adequate quality and suitable for the application and the working voltage involved.	P
3.1.5	Beads and ceramic insulators	No beads or similar ceramic insulators on conductors.	N
3.1.6	Screws for electrical contact pressure		N
3.1.7	Insulating materials in electrical connections	All current carrying connections are metal to metal.	N
3.1.8	Self-tapping and spaced thread screws	Thread-cutting or space thread screws are not used for electrical connections.	N
3.1.9	Termination of conductors	All conductors are reliable secured.	P
	10 N pull test	Considered.	P
3.1.10	Sleeving on wiring		N
3.2	**Connection to a mains supply**		P
3.2.1	Means of connection	Refer below:	P
3.2.1.1	Connection to an a.c. mains supply	The equipment is provided with a Plug.	P
3.2.1.2	Connection to a d.c. mains supply	The equipment is not for connection to a d.c. mains supply.	N
3.2.2	Multiple supply connections		N
3.2.3	Permanently connected equipment	The equipment is not intended for permanent connection to the mains.	N
	Number of conductors, diameter of cable and conduits (mm) .....:		—
3.2.4	Appliance inlets		N
3.2.5	Power supply cords	Refer below:	N
3.2.5.1	AC power supply cords		N
	Type .....:		—

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Rated current (A), cross-sectional area (mm^2), AWG .....:		—
3.2.5.2	DC power supply cords	Equipment is not connected to DC mains.	N
3.2.6	Cord anchorages and strain relief		N
	Mass of equipment (kg), pull (N) .....:		—
	Longitudinal displacement (mm) .....:		—
3.2.7	Protection against mechanical damage		N
3.2.8	Cord guards		N
	Diameter or minor dimension D (mm); test mass (g) .....:		—
	Radius of curvature of cord (mm) .....:		—
3.2.9	Supply wiring space		N
3.3	**Wiring terminals for connection of external conductors**		N
3.3.1	Wiring terminals	Appliance inlet connection	N
3.3.2	Connection of non-detachable power supply cords		N
3.3.3	Screw terminals		N
3.3.4	Conductor sizes to be connected		N
	Rated current (A), cord/cable type, cross-sectional area (mm^2) .....:		—
3.3.5	Wiring terminal sizes		N
	Rated current (A), type, nominal thread diameter (mm) .....:		—
3.3.6	Wiring terminal design		N
3.3.7	Grouping of wiring terminals		N
3.3.8	Stranded wire		N
3.4	**Disconnection from the mains supply**		P
3.4.1	General requirement	The equipment is provided with a Plug..	P
3.4.2	Disconnect devices	See above.	P
3.4.3	Permanently connected equipment	Not permanently connected equipment.	N
3.4.4	Parts which remain energized	No parts remain energized after the disconnect device is pull out.	N
3.4.5	Switches in flexible cords	No switches in flexible cords	N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.4.6	Number of poles - single-phase and d.c. equipment	The disconnect device disconnects both poles simultaneously.	P
3.4.7	Number of poles - three-phase equipment	Single phase equipment.	N
3.4.8	Switches as disconnect devices		N
3.4.9	Plugs as disconnect devices		P
3.4.10	Interconnected equipment	No interconnections using hazardous voltages.	N
3.4.11	Multiple power sources	One power source only.	N
3.5	**Interconnection of equipment**		P
3.5.1	General requirements	SELV Circuit.	P
3.5.2	Types of interconnection circuits .....:	SELV Circuit.	P
3.5.3	ELV circuits as interconnection circuits	No ELV interconnection	N
3.5.4	Data ports for additional equipment		N
4	**PHYSICAL REQUIREMENTS**		P
4.1	Stability		N
	Angle of 10°		N
	Test force (N) .....:		N
4.2	**Mechanical strength**		P
4.2.1	General		P
	Rack-mounted equipment.	(see Annex DD)	P
4.2.2	Steady force test, 10 N		P
4.2.3	Steady force test, 30 N		N
4.2.4	Steady force test, 250 N		P
4.2.5	Impact test		N
	Fall test		N
	Swing test		N
4.2.6	Drop test; height (mm) .....:	1000mm±10mm	P
4.2.7	Stress relief test	100℃, 7h, No danger Parts	P
4.2.8	Cathode ray tubes	No CRT	N
	Picture tube separately certified .....:	(see separate test report or attached certificate)	N
4.2.9	High pressure lamps	No such lamps	N
4.2.10	Wall or ceiling mounted equipment; force (N) .....:		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.2.11	Rotating solid media		N
	Test to cover on the door……:		N
4.3	**Design and construction**		P
4.3.1	Edges and corners	All edges and corners are rounded and/or smoothed.	P
4.3.2	Handles and manual controls; force (N) ..... :	No this devices.	N
4.3.3	Adjustable controls	No such controls	N
4.3.4	Securing of parts	No loosening of parts impairing creepage distances or clearances is likely to occur.	P
4.3.5	Connection by plugs and sockets	SELV voltage connections for the output. Not compatible with connection for the input.	P
4.3.6	Direct plug-in equipment		P
	Torque .....:	0.05Nm	—
	Compliance with the relevant mains plug standard .....:	The plug for different countries shall be evaluated when submitted for national approval.	N
4.3.7	Heating elements in earthed equipment	No heating elements	N
4.3.8	Batteries		N
	- Overcharging of a rechargeable battery		N
	- Unintentional charging of a non-rechargeable battery		N
	- Reverse charging of a rechargeable battery		N
	- Excessive discharging rate for any battery		N
4.3.9	Oil and grease	No oil and grease.	N
4.3.10	Dust, powders, liquids and gases	No dust, powders, liquids and gases.	N
4.3.11	Containers for liquids or gases	No containers for liquid and gases.	N
4.3.12	Flammable liquids .....:	No flammable liquid.	N
	Quantity of liquid (l) .....:		N
	Flash point (°C) .....:		N
4.3.13	Radiation		P
4.3.13.1	General	Refer below:	P
4.3.13.2	Ionizing radiation	The equipment does not generate ionizing radiation.	N
	Measured radiation (pA/kg) .....:		—

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Measured high-voltage (kV) .....:		—
	Measured focus voltage (kV) .....:		—
	CRT markings .....:		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials	The equipment does not produce significant UV radiation.	N
	Part, property, retention after test, flammability classification .....:		N
4.3.13.4	Human exposure to ultraviolet (UV) radiation .....:	The equipment does not produce UV radiation.	N
4.3.13.5	Lasers (including laser diodes) and LEDs	No LED used	N
4.3.13.5.1	Lasers (including laser diodes)	(see separate test report of IEC/EN 60825-1 / IEC/EN 60825-2)	N
	Laser class .....:		—
4.3.13.5.2	Light emitting diodes (LEDs)		
4.3.13.6	Other types .....:	The equipment does not generate other types of radiation.	N
4.4	**Protection against hazardous moving parts**		N
4.4.1	General	No moving parts	N
4.4.2	Protection in operator access areas .....:		N
	Household and home/office document/media shredders	(see Annex EE)	N
4.4.3	Protection in restricted access locations .....:		N
4.4.4	Protection in service access areas		N
4.4.5	Protection against moving fan blades		N
4.4.5.1	General		N
	Not considered to cause pain or injury. a)……:		N
	Is considered to cause pain, not injury. b) ……:		N
	Considered to cause injury. c) ……:		N
4.4.5.2	Protection for users		N
	Use of symbol or warning ……:		N
4.4.5.3	Protection for service persons		N
	Use of symbol or warning ……:		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.5	**Thermal requirements**		P
4.5.1	General		P
4.5.2	Temperature tests		P
	Normal load condition per Annex L .....:		—
4.5.3	Temperature limits for materials	(see appended table 4.5)	P
4.5.4	Touch temperature limits	(see appended table 4.5)	P
4.5.5	Resistance to abnormal heat .....:	(see appended table 4.5.5)	N
4.6	**Openings in enclosures**		N
4.6.1	Top and side openings	No openings	N
	Dimensions (mm) .....:		—
4.6.2	Bottoms of fire enclosures		N
	Construction of the bottomm, dimensions (mm) ..:		—
4.6.3	Doors or covers in fire enclosures		N
4.6.4	Openings in transportable equipment		N
4.6.4.1	Constructional design measures		N
	Dimensions (mm) .....:		—
4.6.4.2	Evaluation measures for larger openings		N
4.6.4.3	Use of metallized parts		N
4.6.5	Adhesives for constructional purposes		N
	Conditioning temperature (°C), time (weeks).....:		—
4.7	**Resistance to fire**		P
4.7.1	Reducing the risk of ignition and spread of flame	Refer below:	P
	Method 1, selection and application of components wiring and materials	(see appended table 4.7)	P
	Method 2, application of all of simulated fault condition tests	(see appended table 5.3)	N
4.7.2	Conditions for a fire enclosure	See below	P
4.7.2.1	Parts requiring a fire enclosure	The fire enclosure is required to cover all parts.	P
4.7.2.2	Parts not requiring a fire enclosure		N
4.7.3	Materials		P
4.7.3.1	General	PCB: V-0.	P
4.7.3.2	Materials for fire enclosures		P
4.7.3.3	Materials for components and other parts outside fire enclosures		P

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.7.3.4	Materials for components and other parts inside fire enclosures		P
4.7.3.5	Materials for air filter assemblies	No air filters in the equipment.	N
4.7.3.6	Materials used in high-voltage components	No parts exceeding 4kV.	N
5	**ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS**		P
5.1	Touch current and protective conductor current		N
5.1.1	General	Test conducted in accordance with 5.1.2 to 5.1.7.	N
5.1.2	Configuration of equipment under test (EUT)	Only one mains supply.	N
5.1.2.1	Single connection to an a.c. mains supply		N
5.1.2.2	Redundant multiple connections to an a.c. mains supply	No connection.	N
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply	Ditto	N
5.1.3	Test circuit		P
5.1.4	Application of measuring instrument	See appended table 5.1.6. Annex D	P
5.1.5	Test procedure	Considered.	P
5.1.6	Test measurements		P
	Supply voltage (V) .....:	264V	—
	Measured touch current (mA) .....:	See appended table 5.1.	—
	Max. allowed touch current (mA) .....:	0.25mA	—
	Measured protective conductor current (mA) .....:	See appended table	—
	Max. allowed protective conductor current (mA)...:	See appended table	—
5.1.7	Equipment with touch current exceeding 3,5 mA	The touch current does not exceed 3.5mA.	N
5.1.7.1	General .....:		N
5.1.7.2	Simultaneous multiple connections to the supply		N
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks		N
5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system		N
	Supply voltage (V) .....:		—
	Measured touch current (mA) .....:		—
	Max. allowed touch current (mA) .....:		—
5.1.8.2	Summation of touch currents from telecommunication networks		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	a) EUT with earthed telecommunication ports .....:		N
	b) EUT whose telecommunication ports have no reference to protective earth		N
5.2	**Electric strength**		P
5.2.1	General	(see appended table 5.2)	P
5.2.2	Test procedure	(see appended table 5.2)	P
5.3	**Abnormal operating and fault conditions**		P
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	P
5.3.2	Motors	(see appended Annex B)	N
5.3.3	Transformers	(see appended Annex C)	P
5.3.4	Functional insulation.....:		P
5.3.5	Electromechanical components	No electromechanical components in secondary circuits.	N
5.3.6	Audio amplifiers in ITE .....:	See separate test report IEC/EN 60065	N
5.3.7	Simulation of faults	See the appended table	P
5.3.8	Unattended equipment	No thermostats, temperature limiters or thermal cut-outs	N
5.3.9	Compliance criteria for abnormal operating and fault conditions	No fire propagated beyond the equipment. No molten metal was emitted.Electric strength test primary to SELV was passed	P
5.3.9.1	During the tests		P
5.3.9.2	After the tests		P
6	**CONNECTION TO TELECOMMUNICATION NETWORKS**		N
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N
6.1.1	Protection from hazardous voltages		N
6.1.2	Separation of the telecommunication network from earth		N
6.1.2.1	Requirements	(see appended table 5.2)	N
	Supply voltage (V) .....:		—
	Current in the test circuit (mA) .....:		—
6.1.2.2	Exclusions .....:		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.2	**Protection of equipment users from overvoltages on telecommunication networks**		N
6.2.1	Separation requirements		N
6.2.2	Electric strength test procedure		N
6.2.2.1	Impulse test	(see appended table 5.2)	N
6.2.2.2	Steady-state test	(see appended table 5.2)	N
6.2.2.3	Compliance criteria		N
6.3	**Protection of the telecommunication wiring system from overheating**		N
	Max. output current (A) .....:		—
	Current limiting method .....:		—
7	**CONNECTION TO CABLE DISTRIBUTION SYSTEMS**		N
7.1	General		N
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N
7.3	Protection of equipment users from overvoltages on the cable distribution system		N
7.4	Insulation between primary circuits and cable distribution systems		N
7.4.1	General		N
7.4.2	Voltage surge test	(see appended table 5.2)	N
7.4.3	Impulse test	(see appended table 5.2)	N
A	**ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE**		N
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		N
A.1.1	Samples .....:		—
	Wall thickness (mm).....:		—
A.1.2	Conditioning of samples; temperature (°C) .....:		N
A.1.3	Mounting of samples .....:		N
A.1.4	Test flame (see IEC 60695-11-3)		N
	Flame A, B, C or D .....:		—
A.1.5	Test procedure		N
A.1.6	Compliance criteria		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Sample 1 burning time (s) ..... :		—
	Sample 2 burning time (s) ..... :		—
	Sample 3 burning time (s) ..... :		—
A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)		N
A.2.1	Samples, material ..... :		—
	Wall thickness (mm) ..... :		—
A.2.2	Conditioning of samples; temperature (°C) ..... :		N
A.2.3	Mounting of samples ..... :		N
A.2.4	Test flame (see IEC 60695-11-4)		N
	Flame A, B or C ..... :		—
A.2.5	Test procedure		N
A.2.6	Compliance criteria		N
	Sample 1 burning time (s) ..... :		—
	Sample 2 burning time (s) ..... :		—
	Sample 3 burning time (s) ..... :		—
A.2.7	Alternative test acc. to IEC 60695-11-5, cl. 5 and 9		N
	Sample 1 burning time (s) ..... :		—
	Sample 2 burning time (s) ..... :		—
	Sample 3 burning time (s) ..... :		—
A.3	Hot flaming oil test (see 4.6.2)		N
A.3.1	Mounting of samples		N
A.3.2	Test procedure		N
A.3.3	Compliance criterion		N
B	**ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)**		N
B.1	General requirements		N
	Position ..... :		—
	Manufacturer ..... :		—
	Type ..... :		—
	Rated values ..... :		—
B.2	Test conditions		N
B.3	Maximum temperatures	(see appended table 5.3)	N
B.4	Running overload test	(see appended table 5.3)	N
B.5	Locked-rotor overload test		N
	Test duration (days) ..... :		—

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Electric strength test: test voltage (V) .....:		—
B.6	Running overload test for d.c. motors in secondary circuits		N
B.6.1	General		N
B.6.2	Test procedure		N
B.6.3	Alternative test procedure		N
B.6.4	Electric strength test; test voltage (V) .....:		N
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		N
B.7.1	General		N
B.7.2	Test procedure		N
B.7.3	Alternative test procedure		N
B.7.4	Electric strength test; test voltage (V) .....:		N
B.8	Test for motors with capacitors	(see appended table 5.3)	N
B.9	Test for three-phase motors	(see appended table 5.3)	N
B.10	Test for series motors		N
	Operating voltage (V) .....:		—
C	**ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)**		P
	Position .....:	T1	—
	Manufacturer .....:	Refer to appended table 1.5.1	—
	Type .....:	Refer to appended table 1.5.1	—
	Rated values .....:	Refer to appended table 1.5.1	—
	Method of protection .....:	Protection by circuit design.	—
C.1	Overload test	(see appended table 5.3)	P
C.2	Insulation	(see appended tables 5.2 and C2)	N
	Protection from displacement of windings .....:		N
D	**ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)**		P
D.1	Measuring instrument		P
D.2	Alternative measuring instrument		N
E	**ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)**		N
F	**ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)**		P

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

G	**ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES**		N
G.1	Clearances		N
G.1.1	General		N
G.1.2	Summary of the procedure for determining minimum clearances		N
G.2	Determination of mains transient voltage (V)		N
G.2.1	AC mains supply .....:		N
G.2.2	Earthed d.c. mains supplies .....:		N
G.2.3	Unearthed d.c. mains supplies .....:		N
G.2.4	Battery operation .....:		N
G.3	Determination of telecommunication network transient voltage (V) .....:		N
G.4	Determination of required withstand voltage (V)		N
G.4.1	Mains transients and internal repetitive peaks .....:		N
G.4.2	Transients from telecommunication networks .....:		N
G.4.3	Combination of transients		N
G.4.4	Transients from cable distribution systems		N
G.5	Measurement of transient voltages (V)		N
	a) Transients from a mains supply		N
	For an a.c. mains supply		N
	For a d.c. mains supply		N
	b) Transients from a telecommunication network		N
G.6	Determination of minimum clearances .....:		N

H	**ANNEX H, IONIZING RADIATION (see 4.3.13)**		N

J	**ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)**		N
	Metal(s) used .....:		—

K	**ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)**		N
K.1	Making and breaking capacity		N
K.2	Thermostat reliability; operating voltage (V) .....:		N
K.3	Thermostat endurance test; operating voltage (V) .....:		N
K.4	Temperature limiter endurance; operating voltage (V) .....:		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
K.5	Thermal cut-out reliability		N
K.6	Stability of operation	(see appended table 5.3)	N
L	**ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)**		N
L.1	Typewriters		N
L.2	Adding machines and cash registers		N
L.3	Erasers		N
L.4	Pencil sharpeners		N
L.5	Duplicators and copy machines		N
L.6	Motor-operated files		N
L.7	Other business equipment		N
M	**ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)**		N
M.1	Introduction		N
M.2	Method A		N
M.3	Method B		N
M.3.1	Ringing signal		N
M.3.1.1	Frequency (Hz) .....:		—
M.3.1.2	Voltage (V) .....:		—
M.3.1.3	Cadence; time (s), voltage (V) .....:		—
M.3.1.4	Single fault current (mA) .....:		—
M.3.2	Tripping device and monitoring voltage .....:		N
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N
M.3.2.2	Tripping device		N
M.3.2.3	Monitoring voltage (V) .....:		N
N	**ANNEX N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5)**		N
N.1	ITU-T impulse test generators		N
N.2	IEC 60065 impulse test generator		N
P	**ANNEX P, NORMATIVE REFERENCES**		—
Q	**ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)**		N
	a) Preferred climatic categories .....:		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	b) Maximum continuous voltage .....:		N
	c) Pulse current .....:		N
R	**ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES**		N
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)		N
R.2	Reduced clearances (see 2.10.3)		N
S	**ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)**		N
S.1	Test equipment		N
S.2	Test procedure		N
S.3	Examples of waveforms during impulse testing		N
T	**ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)**		N
		See separate test report	—
U	**ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)**		N
		See separate test report	—
V	**ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)**		P
V.1	Introduction		P
V.2	TN power distribution systems		P
W	**ANNEX W, SUMMATION OF TOUCH CURRENTS**		P
W.1	Touch current from electronic circuits		P
W.1.1	Floating circuits		P
W.1.2	Earthed circuits		N
W.2	Interconnection of several equipments		N
W.2.1	Isolation		N
W.2.2	Common return, isolated from earth		N
W.2.3	Common return, connected to protective earth		N
X	**ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)**		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
X.1	Determination of maximum input current		N
X.2	Overload test procedure		N
Y	**ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)**		N
Y.1	Test apparatus .....:		N
Y.2	Mounting of test samples .....:		N
Y.3	Carbon-arc light-exposure apparatus .....:		N
Y.4	Xenon-arc light exposure apparatus .....:		N
Z	**ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)**		N
AA	**ANNEX AA, MANDREL TEST (see 2.10.5.8)**		N
BB	**ANNEX BB, CHANGES IN THE SECOND EDITION**		—
CC	**ANNEX CC, Evaluation of integrated circuit (IC) current limiters**		N
CC.1	General		N
CC.2	Test program 1……..:		N
CC.3	Test program 2……..:		N
DD	**ANNEX DD, Requirements for the mounting means of rack-mounted equipment**		N
DD.1	General		N
DD.2	Mechanical strength test, variable N……..:		N
DD.3	Mechanical strength test, 250N, including end stops……:		N
DD.4	Compliance……:		N
EE	**ANNEX EE, Household and home/office document/media shredders**		N
EE.1	General		N
EE.2	Markings and instructions		N
	Use of markings or symbols……:		N
	Information of user instructions, maintenance and/or servicing instructions……:		N
EE.3	Inadvertent reactivation test……:		N
EE.4	Disconnection of power to hazardous moving parts:		N
	Use of markings or symbols……:		N
EE.5	Protection against hazardous moving parts		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Test with test finger (Figure 2A) ……:		N
	Test with wedge probe (Figure EE1 and EE2) ……:		N

EU_GD_IEC 60950_1B_II			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 60950-1
EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

Information technology equipment – Safety –

PART 1: GENERAL REQUIREMENTS

Differences according to ..... : EN 60950-1:2006/A11:2009/A1:2010/A12:2011

Attachment Form No. ..... : EU_GD_IEC60950_1B_II
Attachment Originator..... : SGS Fimko Ltd
Master Attachment ..... : Date 2011-08

Copyright © 2011 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.

EN 60950-1:2006/A11:2009/A1:2010/A12:2011 – CENELEC COMMON MODIFICATIONS

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
Contents	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions		P
General	Delete all the “country” notes in the reference document (IEC 60950-1:2005) according to the following list: 1.4.8 Note 2 1.5.1 Note 2 & 3 1.5.7.1 Note 1.5.8 Note 2 1.5.9.4 Note 1.7.2.1 Note 4, 5 & 6 2.2.3 Note 2.2.4 Note 2.3.2 Note 2.3.2.1 Note 2 2.3.4 Note 2 2.6.3.3 Note 2 & 3 2.7.1 Note 2.10.3.2 Note 2 2.10.5.13 Note 3 3.2.1.1 Note 3.2.4 Note 3. 2.5.1 Note 2 4.3.6 Note 1 & 2 4.7 Note 4 4.7.2.2 Note 4.7.3.1Note 2 5.1.7.1 Note 3 & 4 5.3.7 Note 1 6 Note 2 & 5 6.1.2.1 Note 2 6.1.2.2 Note 6.2.2 Note 6.2.2.1 Note 2 6.2.2.2 Note 7.1 Note 3 7.2 Note 7.3 Note 1 & 2 G.2.1 Note 2 Annex H Note 2		P
General (A1:2010)	Delete all the “country” notes in the reference document (IEC 60950-1:2005/A1:2010) according to the following list: 1.5.7.1 Note 6.1.2.1 Note 2 6.2.2.1 Note 2 EE.3 Note		P

EU_GD_IEC 60950_1B_II			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.3.Z1	Add the following subclause: 1.3.Z1 Exposure to excessive sound pressure The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones. NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for "one package equipment", and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.		P
(A12:2011)	In EN 60950-1:2006/A12:2011 Delete the addition of 1.3.Z1 / EN 60950-1:2006 Delete the definition 1.2.3.Z1 / EN 60950-1:2006 /A1:2010		P
1.5.1	Add the following NOTE: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC		P
1.7.2.1 (A1:2010)	In addition, for a PORTABLE SOUND SYSTEM, the instructions shall include a warning that excessive sound pressure from earphones and headphones can cause hearing loss.		N
1.7.2.1 (A12.2011)	In EN 60950-1:2006/A12:2011 Delete NOTE Z1 and the addition for Portable Sound System. Add the following clause and annex to the existing standard and amendments.		N
	Zx Protection against excessive sound pressure from personal music players		N

EU_GD_IEC 60950_1B_II			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	Zx.1 General This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with personal music players. A personal music player is a portable equipment for personal use, that: – is designed to allow the user to listen to recorded or broadcast sound or video; and – primarily uses headphones or earphones that can be worn in or on or around the ears; and – allows the user to walk around while in use. NOTE 1 Examples are hand-held or body-worn portable CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment. A personal music player and earphones or headphones intended to be used with personal music players shall comply with the requirements of this sub-clause. The requirements in this sub-clause are valid for music or video mode only. The requirements do not apply: – while the personal music player is connected to an external amplifier; or – while the headphones or earphones are not used. NOTE 2 An external amplifier is an amplifier which is not part of the personal music player or the listening device, but which is intended to play the music as a standalone music player. The requirements do not apply to: – hearing aid equipment and professional equipment; NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment.		N
	– analogue personal music players (personal music players without any kind of digital processing of the sound signal) that are brought to the market before the end of 2015. NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies. For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.		N

EU_GD_IEC 60950_1B_II			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	Zx.2 Equipment requirements No safety provision is required for equipment that complies with the following: – equipment provided as a package (personal music player with its listening device), where the acoustic output $L_{Aeq,T}$ is ≤ 85 dBA measured while playing the fixed "programme simulation noise" as described in EN 50332-1; and – a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured as described in EN 50332-2, while playing the fixed "programme simulation noise" as described in EN 50332-1. NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level $L_{Aeq,T}$ is meant. See also Zx.5 and Annex Zx. All other equipment shall: a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and b) have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; and		N

EU_GD_IEC 60950_1B_II			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	c) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and NOTE 2 Examples of means include visual or audible signals. Action from the user is always required. NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off. d) have a warning as specified in Zx.3; and e) not exceed the following: 1) equipment provided as a package (player with Its listening device), the acoustic output shall be ≤ 100 dBA measured while playing the fixed “programme simulation noise” described in EN 50332-1; and 2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be ≤ 150 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” described in EN 50332-1. For music where the average sound pressure (long term $L_{Aeq,T}$) measured over the duration of the song is lower than the average produced by the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. In this case T becomes the duration of the song. NOTE 4 Classical music typically has an average sound pressure (long term $L_{Aeq,T}$) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the song and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. For example, if the player is set with the programme simulation noise to 85 dBA, but the average music level of the song is only 65 dBA, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dBA.		N

EU_GD_IEC 60950_1B_II			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	Zx.3 Warning The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following: – the symbol of Figure 1 with a minimum height of 5 mm; and – the following wording, or similar: "To prevent possible hearing damage, do not listen at high volume levels for long periods." **Figure 1 – Warning label (IEC 60417-6044)** Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.		N
	Zx.4 Requirements for listening devices (headphones and earphones)		N
	Zx.4.1 Wired listening devices with analogue input With 94 dBA sound pressure output $L_{Aeq,T}$, the input voltage of the fixed "programme simulation noise" described in EN 50332-2 shall be ≥ 75 mV. This requirement is applicable in any mode where the headphones can operate (active or passive), including any available setting (for example built-in volume level control). NOTE The values of 94 dBA – 75 mV correspond with 85dBA – 27 mV and 100 dBA – 150 mV.		N

EU_GD_IEC 60950_1B_II			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	Zx.4.2 Wired listening devices with digital input With any playing device playing the fixed "programme simulation noise" described in EN 50332-1 (and respecting the digital interface standards, where a digital interface standard exists that specifies the equivalent acoustic level), the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA. This requirement is applicable in any mode where the headphones can operate, including any available setting (for example built-in volume level control, additional sound feature like equalization, etc.). NOTE An example of a wired listening device with digital input is a USB headphone.		N
	Zx.4.3 Wireless listening devices In wireless mode: – with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and – respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and – with volume and sound settings in the listening device (for example built-in volume level control, additional sound feature like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the abovementioned programme simulation noise, the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA. NOTE An example of a wireless listening device is a Bluetooth headphone.		N
	Zx.5 Measurement methods Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable. Unless stated otherwise, the time interval T shall be 30 s. NOTE Test method for wireless equipment provided without listening device should be defined.		N

EU_GD_IEC 60950_1B_II			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
2.7.1	Replace the subclause as follows: Basic requirements To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;		P
	c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.		P
2.7.2	This subclause has been declared ‘void’.		--
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		N

EU_GD_IEC 60950_1B_II			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.5.1	Replace “60245 IEC 53” by “H05 RR-F”; “60227 IEC 52” by “H03 VV-F or H03 VVH2-F”; “60227 IEC 53” by “H05 VV-F or H05 VVH2-F2”. In Table 3B, replace the first four lines by the following: Up to and including 6 | 0,75 [a] | Over 6 up to and including 10| (0,75) [b] 1,0 | Over 10 up to and including 16| (1,0) [c] 1,5 | In the conditions applicable to Table 3B delete the words “in some countries” in condition [a]. In NOTE 1, applicable to Table 3B, delete the second sentence.		N
3.3.4	In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following: Over 10 up to and including 16 | 1,5 to 2,5 | 1,5 to 4 | Delete the fifth line: conductor sizes for 13 to 16 A		N
4.3.13.6 (A1:2010)	Replace the existing NOTE by the following: NOTE Z1 Attention is drawn to: 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and 2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artifical optical radiation).		P
	Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.		P
Annex H	Replace the last paragraph of this annex by: At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete NOTE 2.		P
Bibliography	Additional EN standards.		—

EU_GD_IEC 60950_1B_II			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
ZA	**NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS**		—

ZB ANNEX (normative) **SPECIAL NATIONAL CONDITIONS (EN)**			
Clause	Requirement + Test	Result - Remark	Verdict
1.2.4.1	In **Denmark**, certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.		N
1.2.13.14	In **Norway** and **Sweden**, for requirements see 1.7.2.1 and 7.3 of this annex.		N
1.5.7.1	In **Finland, Norway** and **Sweden**, resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.		N
1.5.8	In **Norway**, due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N
1.5.9.4	In **Finland**, **Norway** and **Sweden**, the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.		N

EU_GD_IEC 60950_1B_II			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) **SPECIAL NATIONAL CONDITIONS (EN)**			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.1	In **Finland**, **Norway** and **Sweden**, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows: In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In Norway: “Apparatet må tilkoples jordet stikkontakt” In Sweden: “Apparaten skall anslutas till jordat uttag” In **Norway** and **Sweden**, the screen of the cable distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a cable distribution system. It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by e.g. a retailer. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: “Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing – and to a cable distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11).”		N

EU_GD_IEC 60950_1B_II			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) **SPECIAL NATIONAL CONDITIONS (EN)**			
Clause	Requirement + Test	Result - Remark	Verdict
	NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet.” Translation to Swedish: ”Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet.”		N
1.7.5	In **Denmark**, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a. For **CLASS II EQUIPMENT** the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.		N
2.2.4	In **Norway**, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N
2.3.2	In **Finland**, **Norway** and **Sweden** there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.		N
2.3.4	In **Norway**, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N
2.6.3.3	In the **United Kingdom**, the current rating of the circuit shall be taken as 13 A, not 16 A.		N

EU_GD_IEC 60950_1B_II			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) **SPECIAL NATIONAL CONDITIONS (EN)**			
Clause	Requirement + Test	Result - Remark	Verdict
2.7.1	In the **United Kingdom**, to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.		N
2.10.5.13	In **Finland**, **Norway** and **Sweden**, there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.		N
3.2.1.1	In **Switzerland**, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets: SEV 6532-2.1991 Plug Type 15 3P+N+PE 250/400 V, 10 A SEV 6533-2.1991 Plug Type 11 L+N 250 V, 10 A SEV 6534-2.1991 Plug Type 12 L+N+PE 250 V, 10 A In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998: SEV 5932-2.1998: Plug Type 25 , 3L+N+PE 230/400 V, 16 A SEV 5933-2.1998:Plug Type 21, L+N, 250 V, 16A SEV 5934-2.1998: Plug Type 23, L+N+PE 250 V, 16 A		N N

EU_GD_IEC 60950_1B_II			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	In **Denmark**, supply cords of single-phase equipment having a rated current not exceeding13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.		N
3.2.1.1	In **Spain**, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994. Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994. If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.		N
3.2.1.1	In the **United Kingdom**, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations. NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N

EU_GD_IEC 60950_1B_II			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) **SPECIAL NATIONAL CONDITIONS (EN)**			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	In **Ireland**, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.		N
3.2.4	In **Switzerland**, for requirements see 3.2.1.1 of this annex.		N
3.2.5.1	In the **United Kingdom**, a power supply cord with conductor of 1,25 mm2 is allowed for equipment with a rated current over 10 A and up to and including 13 A.		N
3.3.4	In the **United Kingdom**, the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: • 1,25 mm^2 to 1,5 mm^2 nominal cross-sectional area.		N
4.3.6	In the **United Kingdom**, the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N
4.3.6	In **Ireland**, DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.		N

EU_GD_IEC 60950_1B_II			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) **SPECIAL NATIONAL CONDITIONS (EN)**			
Clause	Requirement + Test	Result - Remark	Verdict
5.1.7.1	In **Finland**, **Norway** and **Sweden** TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment: • STATIONARY PLUGGABLE EQUIPMENT TYPE A that is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and is provided with instructions for the installation of that conductor by a SERVICE PERSON; • STATIONARY PLUGGABLE EQUIPMENT TYPE B; • STATIONARY PERMANENTLY CONNECTED EQUIPMENT.		N

EU_GD_IEC 60950_1B_II			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) **SPECIAL NATIONAL CONDITIONS (EN)**			
Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.1 (A1:2010)	In **Finland**, **Norway** and **Sweden**, add the following text between the first and second paragraph of the compliance clause: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. Alternatively for components, there is no distance through insulation requirements for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition - passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV.		N

EU_GD_IEC 60950_1B_II			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) **SPECIAL NATIONAL CONDITIONS (EN)**			
Clause	Requirement + Test	Result - Remark	Verdict
	It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b). It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 60384-14: - the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.		N
6.1.2.2	In **Finland**, **Norway** and **Sweden**, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.		N
7.2	In **Finland**, **Norway** and **Sweden**, for requirements see 6.1.2.1 and 6.1.2.2 of this annex. The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.		N
7.3	In **Norway** and **Sweden**, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.		N
7.3	In **Norway**, for installation conditions see EN 60728-11:2005.		N

1.5.1	TABLE: List of critical components	P

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity1)
Enclosure	NAN YA PLASTICS CORP PLASTICS 4TH DIV	6410G5	Polyamide 66 (PA66),, V-0, 130°C, 2,0 mm min. thickness	Applicable parts of IEC/EN 60950	Tested in appliance
Plug holder	NAN YA PLASTICS CORP PLASTICS 4TH DIV	6410G5	Polyamide 66 (PA66),, V-0, 130°C, 2,0 mm min. thickness	Applicable parts of IEC/EN 60950	Tested in appliance
Fuse(F1)	Shenzhen Grea Electronics Co. Ltd.	RXF-1W Serie	1 W, 4,7 ohm	Applicable parts of IEC/EN 60950	Tested in appliance
Heat-shrinkable tube	Shenzhen Woer Heat-Shrinkable Material Co Ltd	RSFR-x	AC0-600V,125℃	UL 224	UL E203950
Insulation sheet	Formex,Div Of Il Tool Works Inc,Frmrly Fastex,Div Of Il Tool Works Inc	FORMEX GK-(a)(b)(f2)	V-0, 115°C, thickness: 0,2 mm min.	Applicable parts of IEC/EN 60950	Tested in appliance
Input wire	Shenzhen Shi Yihuaxing Electron Co., Ltd.	1007	VW-1, 80°C min., 300Vac min. 24AWG	Applicable parts of IEC/EN 60950	Tested in appliance
Y-cap (CY1)	Jya-Nay Co Ltd	JN	Max 2200PF, Min 250V, Y1, 25/125/21,	IEC 60384-14	VDE(122699)
Alternate	Guangdong South Hongming Electronic Science & Technology Co Ltd	F	Max 2200PF, Min 250V, Y1, 25/125/21	UL1414 IEC 60384-14	VDE(118357)
Optocoupler (U2)	HUBEI KENTO ELECTRONIC CO LTD	JC 817	Int. Cr / Ext. Cr / Dti. 7,62 mm / 8,0 mm / >0,4 mm100 °C	IEC 60747-5-2 + A1: 2002 EN 60747-5-2 + A1: 2002	VDE (40037109)
Transformer (T1)	Shenzhen Nanbang Electronics Co., Ltd	NB-T-USB29	Class B	EN 60950-1	Test with appliance
-Bobbin	SUMITOMO BAKELITE CO LTD	PM9820	V-0, 150°C	UL 94	UL E41429

1.5.1	TABLE: List of critical components				P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity1)
-Insulation tape	3M COMPANY ELECTRICAL MARKETS DIV(EMD)	1350-1	130°C	UL 510	UL E17385
-Triple insulated wire	FURUKAWA ELECTRONIC CO., LTD	TEX-BS	130°C	IEC/EN60950-1	VDE 40020335
-Magnet wire	HOI LUEN ELECTRICAL MFR CO., LTD	2UEW	130°C	ANSI/UL 1446	UL E164409
-Tube	GREAT HOLDING INDUSTRIAL CO LTD	TFL	200°C	ANSI/UL 224	UL E156256
-Varnish	JOHN DOLPH CO	BC-346A	130°C	UL 1446	UL E317427
PCB	Shenzhen Zhong Luo Electronics Co., Ltd.	ZL-01	V-0, 130°C	UL94	UL
1) An asterisk indicates a mark which assures the agreed level of surveillance					
Supplementary information: N/A					

1.6.2	TABLE: Electrical data (in normal conditions)					P
U (V)	Irated (A)	I (A)	P (W)	Fuse #	Ifuse (A)	Condition/status
90V/ 50Hz	--	0.093	5.2	F1	0.093	normal operation
90V/ 60Hz	--	0.091	5.1	F1	0.091	
110V/ 50Hz	0.3	0.086	4.9	F1	0.086	
110V/ 60Hz	0.3	0.091	4.9	F1	0.091	
240V/ 50Hz	0.3	0.050	5.0	F1	0.050	
240V/ 60Hz	0.3	0.048	5.0	F1	0.048	
264V/ 50Hz	--	0.042	5.1	F1	0.042	
264V/ 60Hz	--	0.046	5.1	F1	0.046	
Supplementary information:--						

2.1.1.5	TABLE: max. V, A, VA test			P
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)
5.0	1	5.1	1.25	5.75
Note(s): Test voltage: 264V/50Hz				

2.1.1.7	TABLE: discharge test	N

Condition	V_0 (V pk)	37% V_0 (V pk)	37%(t) (ms)	tu→1s (V pk)
--	--	--	--	--
Note(s):				

2.2.2	TABLE: Hazardous voltage measurement			P
Transformer	location	Max. Voltage		Voltage Limitation Component
		V peak	V d.c	
T1	Pin 5 to pin 6	26.9	--	--
	T1 pin 6 to D3"-"	--	--	--
Note(s): 240V/50Hz				

2.2.3	TABLE: SELV voltage measurement	N
Location	Voltage measured (V)	Comments
--	--	--
Note: Test voltage: --		

2.4.2	TABLE: limited current circuit measurement				P
Location	Voltage (V)	Current (mA)	Freq. (KHz)	Limit (mA)	Comments
CY1 sec. pin to earth	10.6	5.3	50	35	--
Note(s): -- Test voltage: --					

2.5	TABLE: limited power source measurement		P
	Limits	Measured	Verdict
Uoc= 5.1V			
According to Table 2B (normal condition)			
Current (in A)	≤8.0	1.25	P
apparent power (in VA)	≤100	5.75	P
Note(s): Test voltage: 264V/50Hz			

2.6.3.4	Table: ground continue test	N
Location	Resistance measured (mΩ)	Comments
--	--	--

2.10.2	TABLE: WORKING VOLTAGE MEASUREMENT		P
Location	RMS voltage (V)	Peak voltage (V)	Comments
Transformer T1			
Pin 1 to 5	225	382	
Pin 1 to 6	225	365	
Pin 2 to 5	225	370	
Pin 2 to 6	225	383	
Pin 3 to 5	240	480	
Pin 3 to 6	**244**	**472**	**Max. RMS voltage and max. Peak voltage**
Pin 4 to 5	211	353	
Pin 4 to 6	211	356	
Supplementary information: supply voltage: 240V/50Hz			

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements					P
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)
Between L to N before fuse	420	250	2.0	2.7	2.5	2.7
Fuse pin to pin	420	250	2.0	3.1	2.5	3.1
Primary trace to Secondary trace	476	244	4.2	＞5.0	5.0	＞5.0
Core of transformer T1 to C4	476	244	4.2	＞5.0	5.0	＞5.0
Primary trace of C1 to enclosure outside	420	250	4.0	＞5.0	5.0	＞5.0
Supplementary information: supply voltage: 240V/50Hz						

2.10.5	TABLE: Distance through insulation measurements				P
Distance through insulation (DTI) at/of:	U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)
Enclosure	420	240	AC 3000	0.4	2.24
Supplementary information:N.A					

4.3.8	TABLE: Batteries									N
The tests of 4.3.8 are applicable only when appropriate battery data is not available										
Is it possible to install the battery in a reverse polarity position?										N
	Non-rechargeable batteries			Rechargeable batteries						
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging		
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	
Max. current during normal condition	--	--	--	--	--	--	--	--	--	
Max. current during fault condition	--	--	--	--	--	--	--	--	--	
Test results:										Verdict
- Chemical leaks										
- Explosion of the battery										
- Emission of flame or expulsion of molten metal										
- Electric strength tests of equipment after completion of tests										
Supplementary information:										

4.3.8	TABLE: Batteries	N
Battery category.....: --		
Manufacturer.....: --		
Type / model .....: --		
Voltage.....: --		
Capacity.....: --		
Tested and Certified by (incl. Ref. No.) .....: --		
Circuit protection diagram: --		

4.5	TABLE: Thermal requirements							P
	Supply voltage (V) ..... :	1) 90V/ 50Hz 2) 264V/ 50Hz						—
	Ambient T_{min} (°C) ..... :	See below						—
	Ambient T_{max} (°C) ..... :							—
Maximum measured temperature T of part/at::		T (°C)						Allowed T_{max} (°C)
Test condition		1)	2)	--				
1. Plug holder		78.8	80.6	80				
2. Input lead wire		82.3	82.7					
3. C2		88.2	89.6	105				
4. PCB near DB1		105.8	108.4	130				
5. PCB near U1		107.7	106.2	130				
6. T1 winding		107.4	104.3	110				
7. T1 core		106.5	102.8	--				
8. Optocoupler (U2)		97.3	96.4	100				
9. CY1 (Y-capacitor)		93.9	95.6	125				
7. PCB near D3		99.8	100.6	130				
8. Enclosure inside (top near transformer)		85.8	86.5	--				
9. Enclosure inside (near D3)		88.2	89.6	--				
10. Enclosure outside (top near transformer)		79.0	79.9	95				
11. Enclosure outside (near D3)		79.5	79.8	95				
12. Ambient		55.0	55.0	--				
Note(s):								
Temperature T of winding:	t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed T_{max} (°C)	Insulation class	
--	--	--	--	--	--	--	--	
--	--	--	--	--	--	--	--	
Supplementary information:								

4.5.5	**TABLE: Ball pressure test of thermoplastic parts**		P
	Allowed impression diameter (mm) .....:	≤ 2 mm	—

Part	Test temperature (°C)	Impression diameter (mm)
Plug holder	125	1.26
Supplementary information:--		

4.7	**TABLE: Resistance to fire**				P
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence
Enclosure	NAN YA PLASTICS CORP PLASTICS 4TH DIV	6410G5	2.25	V-0	UL
PCB	Shenzhen Zhong Luo Electronics Co., Ltd.	ZL-01	1.22	V-0	UL
Supplementary information:--					

5.1.6	TABLE: Touch current			P
Conditions:	L→terminal A (mA)	N→terminal A (mA)	Limit (mA)	Comments
System on	0.001	0.001	0.25	to plastic enclosure
System on	0.11	0.11	0.25	to output terminals"+"
System on	0.011	0.11	0.25	to output terminals"-"
Note: Test voltage: 264/50Hz				

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests		P
Test voltage applied between:	Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
Functional:--			
--	--	--	--
--	--	--	--
Basic/supplementary:			
L to N (fuse disconnect)	AC	1500	No
Reinforced:			
L/N Input to to output terminals	AC	3000	NO
L/N Input to plastic enclosure	AC	3000	NO
T1: primary and secondary	AC	3000	NO
T1: secondary and core (core considered as primary)	AC	3000	NO
Two layers insulation type of T1	AC	3000	NO
Supplementary information:--			

5.3	TABLE: Fault condition tests		P
	Ambient temperature (°C) .....:	--	—
	Power source for EUT: Manufacturer, model/type, output rating .....:	--	—

Component No.	Fault	Supply voltage (V)	Test time	Fuse(Yes/No)	Fuse current (A)	Observation
DB1	S-C	264V/50 Hz	1S	F1	0	Fuse(F1) opened immediately and repeat ten times, D3 damaged, no hazard.
C2	S-C	264V/50 Hz	1S	F1	0	Fuse(F1) opened immediately and repeat ten times, no hazard.
T1 sceondary	S-C	264V/50 Hz	30min.	F1	0.041→ 0.007	Unit shutdown immediately and recoverable, no hazard, no damage.
U2 pin 1-2	S-C	264V/50 Hz	30min.	F1	0.007	Unit shutdown immediately and recoverable, no hazard, no damage.
U2 pin 3-4	S-C	264V/50 Hz	30min.	F1	0.004	Unit shutdown immediately and recoverable, no hazard, no damage.
C5	S-C	264V/50 Hz	30 min.	F1	0	Unit shutdown immediately and recoverable, no hazard, no damage.
D3	S-C	264V/50 Hz	30 min.	F1	0	Unit shutdown immediately and recoverable, no hazard, no damage.

Output	S-C	264V/50 Hz	30 min.	F1	0	Unit shutdown immediately and recoverable, no hazard, no damage.
Output	O-L	264V/50 Hz	4h	F1	0.057→ 0.006	Max. output current 1.25A, 1.35A shutdown, no hazards, no damaged. T1 winding: 92.3℃ T1 core: 94.6℃ Ambient: 25.0℃
Supplementary information:--						

Photos

Fig. 1

Fig. 2

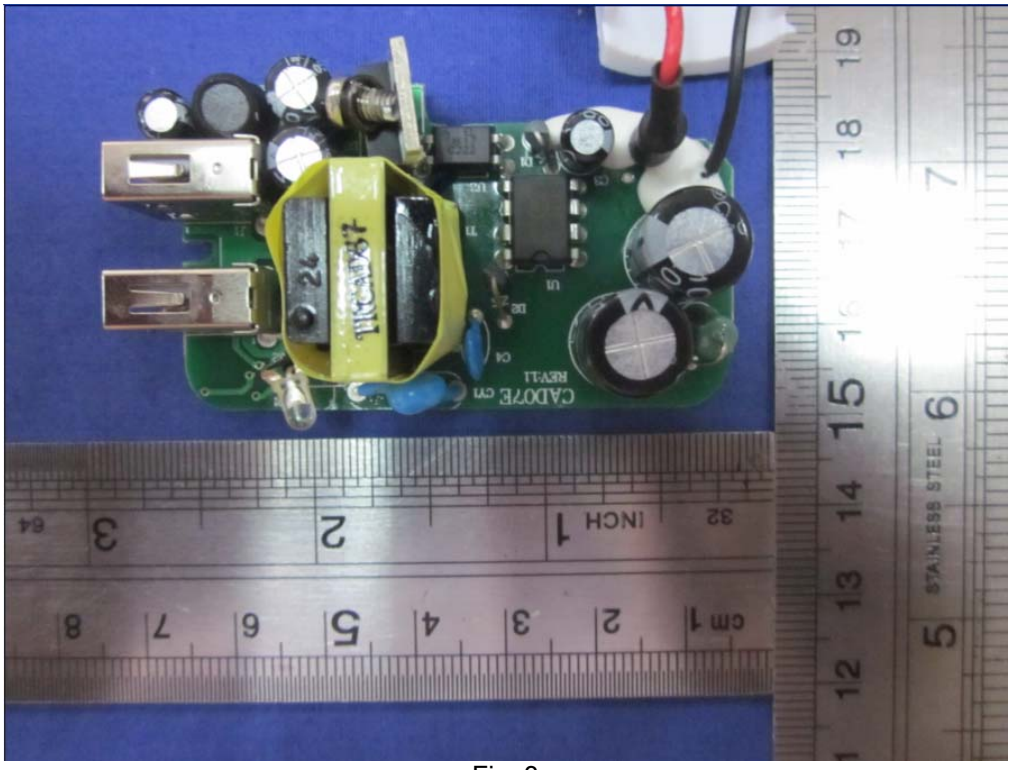

Fig. 3

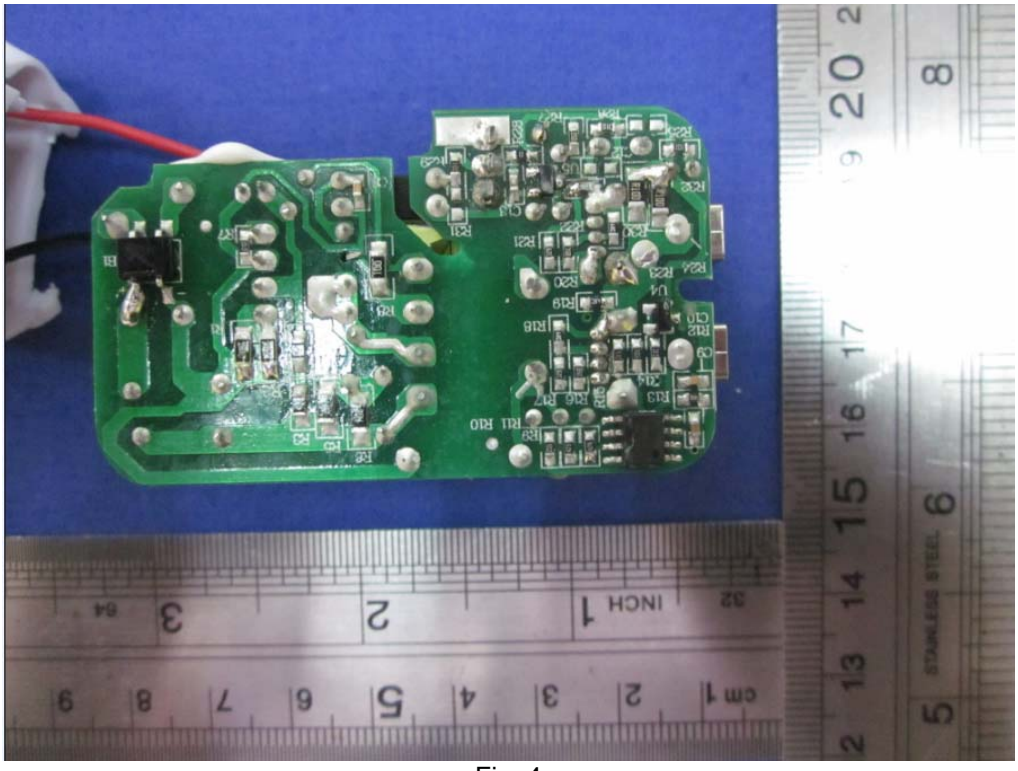

Fig. 4

===== End of Test Report =====